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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
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10/584,786

06/28/2006

Alain Ravex

Serie 6486

4981

40582

7590

08/13/2010

AIR LIQUIDE USA LLC

Intellectual Property

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HOUSTON, TX 77056

EXAMINER

PETTITT, JOHN F

ART UNIT

PAPER NUMBER

3744

MAIL DATE

DELIVERY MODE

08/13/2010

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

|  |                                      |                                     |  |
|--|--------------------------------------|-------------------------------------|--|
| <p align="center"><b>Advisory Action</b><br/><b>Before the Filing of an Appeal Brief</b></p> | <b>Application No.</b><br>10/584,786 | <b>Applicant(s)</b><br>RAVEX ET AL. |  |
|  | <b>Examiner</b><br>John F. Pettitt   | <b>Art Unit</b><br>3744             |  |

**--The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

THE REPLY FILED 29 July 2010 FAILS TO PLACE THIS APPLICATION IN CONDITION FOR ALLOWANCE.

1. ☒ The reply was filed after a final rejection, but prior to or on the same day as filing a Notice of Appeal. To avoid abandonment of this application, applicant must timely file one of the following replies: (1) an amendment, affidavit, or other evidence, which places the application in condition for allowance; (2) a Notice of Appeal (with appeal fee) in compliance with 37 CFR 41.31; or (3) a Request for Continued Examination (RCE) in compliance with 37 CFR 1.114. The reply must be filed within one of the following time periods:

- a) ☒ The period for reply expires 3 months from the mailing date of the final rejection.  
 b) ☐ The period for reply expires on: (1) the mailing date of this Advisory Action, or (2) the date set forth in the final rejection, whichever is later. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of the final rejection.

Examiner Note: If box 1 is checked, check either box (a) or (b). ONLY CHECK BOX (b) WHEN THE FIRST REPLY WAS FILED WITHIN TWO MONTHS OF THE FINAL REJECTION. See MPEP 706.07(f).

Extensions of time may be obtained under 37 CFR 1.136(a). The date on which the petition under 37 CFR 1.136(a) and the appropriate extension fee have been filed is the date for purposes of determining the period of extension and the corresponding amount of the fee. The appropriate extension fee under 37 CFR 1.17(a) is calculated from: (1) the expiration date of the shortened statutory period for reply originally set in the final Office action; or (2) as set forth in (b) above, if checked. Any reply received by the Office later than three months after the mailing date of the final rejection, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### NOTICE OF APPEAL

2. ☐ The Notice of Appeal was filed on \_\_\_\_\_. A brief in compliance with 37 CFR 41.37 must be filed within two months of the date of filing the Notice of Appeal (37 CFR 41.37(a)), or any extension thereof (37 CFR 41.37(e)), to avoid dismissal of the appeal. Since a Notice of Appeal has been filed, any reply must be filed within the time period set forth in 37 CFR 41.37(a).

#### AMENDMENTS

3. ☐ The proposed amendment(s) filed after a final rejection, but prior to the date of filing a brief, will not be entered because  
 (a) ☐ They raise new issues that would require further consideration and/or search (see NOTE below);  
 (b) ☐ They raise the issue of new matter (see NOTE below);  
 (c) ☐ They are not deemed to place the application in better form for appeal by materially reducing or simplifying the issues for appeal; and/or  
 (d) ☐ They present additional claims without canceling a corresponding number of finally rejected claims.

NOTE: \_\_\_\_\_. (See 37 CFR 1.116 and 41.33(a)).

4. ☐ The amendments are not in compliance with 37 CFR 1.121. See attached Notice of Non-Compliant Amendment (PTOL-324).  
 5. ☐ Applicant's reply has overcome the following rejection(s): \_\_\_\_\_.  
 6. ☐ Newly proposed or amended claim(s) \_\_\_\_\_ would be allowable if submitted in a separate, timely filed amendment canceling the non-allowable claim(s).  
 7. ☐ For purposes of appeal, the proposed amendment(s): a) ☐ will not be entered, or b) ☐ will be entered and an explanation of how the new or amended claims would be rejected is provided below or appended.  
 The status of the claim(s) is (or will be) as follows:  
 Claim(s) allowed: \_\_\_\_\_.  
 Claim(s) objected to: \_\_\_\_\_.  
 Claim(s) rejected: \_\_\_\_\_.  
 Claim(s) withdrawn from consideration: \_\_\_\_\_.

#### AFFIDAVIT OR OTHER EVIDENCE

8. ☐ The affidavit or other evidence filed after a final action, but before or on the date of filing a Notice of Appeal will not be entered because applicant failed to provide a showing of good and sufficient reasons why the affidavit or other evidence is necessary and was not earlier presented. See 37 CFR 1.116(e).  
 9. ☐ The affidavit or other evidence filed after the date of filing a Notice of Appeal, but prior to the date of filing a brief, will not be entered because the affidavit or other evidence failed to overcome all rejections under appeal and/or appellant fails to provide a showing of a good and sufficient reasons why it is necessary and was not earlier presented. See 37 CFR 41.33(d)(1).  
 10. ☐ The affidavit or other evidence is entered. An explanation of the status of the claims after entry is below or attached.

#### REQUEST FOR RECONSIDERATION/OTHER

11. ☒ The request for reconsideration has been considered but does NOT place the application in condition for allowance because:  
See Continuation Sheet.  
 12. ☐ Note the attached Information *Disclosure Statement*(s). (PTO/SB/08) Paper No(s). \_\_\_\_\_.  
 13. ☐ Other: \_\_\_\_\_.

/Frantz F. Jules/  
Supervisory Patent Examiner, Art Unit 3744

/John F Pettitt /  
Examiner, Art Unit 3744

Continuation of 11. does NOT place the application in condition for allowance because: Applicant's arguments filed 7/29/2010 have been fully considered but they are not persuasive.

1. Applicant's arguments (page 2, 2) are that the applicant's request clarification on the modification of Peshka. In response to the applicant's arguments, the rejection is based on replacing the radiation shield of Peshka with the gas cooled shields of Moiseev and the foam insulation of lak. It is believed that the applicant intended to write "place the radiation shield 2 (of Moiseev) in fluid communication between the pipeline 10 and interior of tank 1 of Peschka..." rather than the radiation shield 5 since the shield 5 of Peshka is being replaced.

2. Applicant's arguments (page 3, 2) are first that the applicant's assert that storage duration is not a "sufficient reason" to modify Peshka since Peshka already provides relatively long term storage. In response to the applicant's arguments, first it is noted that the allegation that the cooling provided by hydrogen gas leaving the storage tank is not of sufficient worth is unpersuasive, since Moiseev clearly teaches that the vapor flowing from tank (4) through the shield (2) provides improved cooling of objects (column 2, lines 60-65). And further because there is no support for the allegation.

In regard to the implication of the applicant that Peshka would not benefit from longer storage durations because the Peshka is already storing the liquid efficient enough, it is noted that the whole point of these systems is to keep the cryogen cold and stored for as long as possible. Therefore, stating that a combination that does this better would not be desirable is illogical and unsupported.

3. Applicant's arguments (page 3, 2) are a request by the applicant for a lesson on heat transfer. In response to the first query it is noted that hydrogen vapor that is leaving the tank (3) of Peshka is at a cryogenic temperature and therefore has refrigeration value and may cool radiation shields and thereby reduce the amount of heat that is introduced into the stored liquid by radiation from the radiation shields and reduces the amount of cooling that needs to be provided by the cooling unit 23 of Peshka to keep the radiation shields cold.

In response to the second query, it is noted that the cooling of the radiation shields with the exiting vapor reduces the cooling required from unit 23. Further the cooling provided to the shields of Moiseev provides for more temperature uniformity in the shields.

In response to the third query, again Moiseev's teachings of using the refrigeration potential of the exiting vapor is more efficient since it requires less cooling power from the cooling unit 23 and would provide longer storage times for the same amount of cooling power.

In response to the allegation (page 3, 3) that the applicant must receive satisfactory answers to justify the rejection, it is noted that the applicant's inability to understand heat transfer and thermodynamic facts is not a basis for finding a rejection to be improper.

4. Applicant's arguments (page 3, 4) are that the combination of the teachings of Peshka and Moiseev would not have resulted in the claimed invention because Peshka does not teach that the exiting hydrogen vapor cools the radiation shield and is provided to the fuel cell. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). If Peshka taught both these aspects then Peshka would anticipate the claimed invention. The rejection is based on the combination of the teachings of the references; therefore, the argument is irrelevant to the basis of the rejection.

5. Applicant's arguments (page 4, 1) are an allegation that one of ordinary skill in the art would have avoided a gas cooled radiation shield because Peschka teaches that it is desirable to avoid a thermal bridge between the tank and the casing. In response to the applicant's arguments, it is noted that Peshka does teach that it is undesirable to create thermal bridge from the warm casing and the cold tank -- however, this has everything to do with eliminating and reducing heat leak into the storage tank and nothing to do with using the exiting vapor to cool a radiation shield as taught by Moiseev. Therefore, the allegation is unpersuasive.

In response to the applicant's discussion of inherency regarding heat transfer between the vapor and the radiation shield, it is noted that the radiation shield 5 is being replaced by the radiation shield 2 of Moiseev, therefore the applicant's arguments are not relevant to the rejection.

6. Applicant's arguments (page 4, 2 - page 5, 1) are that the claim requires two separate elements: a circuit and a screen and that the rejection states that the screen is the shield 2 and the circuit. In response to the applicant's arguments, it is noted that the applicant has incorrectly characterized the rejection. The rejection has shown that the circuit comprises the circuit of Peshka (10) and the structure of Moiseev -- which includes the circuit portions of Moiseev - 28, 7, between screens 2 and even channels 6. Therefore, the argument is unpersuasive as these circuit portions combined with the circuit portion (10) of Peshka meet the claim limitations concerning the inner and outer portions of the circuit that heat exchange with the screens (shields).

Therefore, the argument is unpersuasive.

7. Applicant's arguments (page 5, 3) are that Kema does not teach a liquid hydrogen tank since room temperature hydrogen is in the tank. In response to the applicant's arguments, it is noted that the use of the tank for storing other fluids is not evidence that the tank may not be used to store liquid hydrogen. Further, it is noted that the storing more hydrogen in the tank by storing the hydrogen in the liquid state and using known cryogenic heat shields to do so efficiently is considered an obvious modification. There is nothing non-analogous about storing a fluid at a colder temperature. The argument is unpersuasive.